

\$35

QLA-1 LINE AMPLIFIER

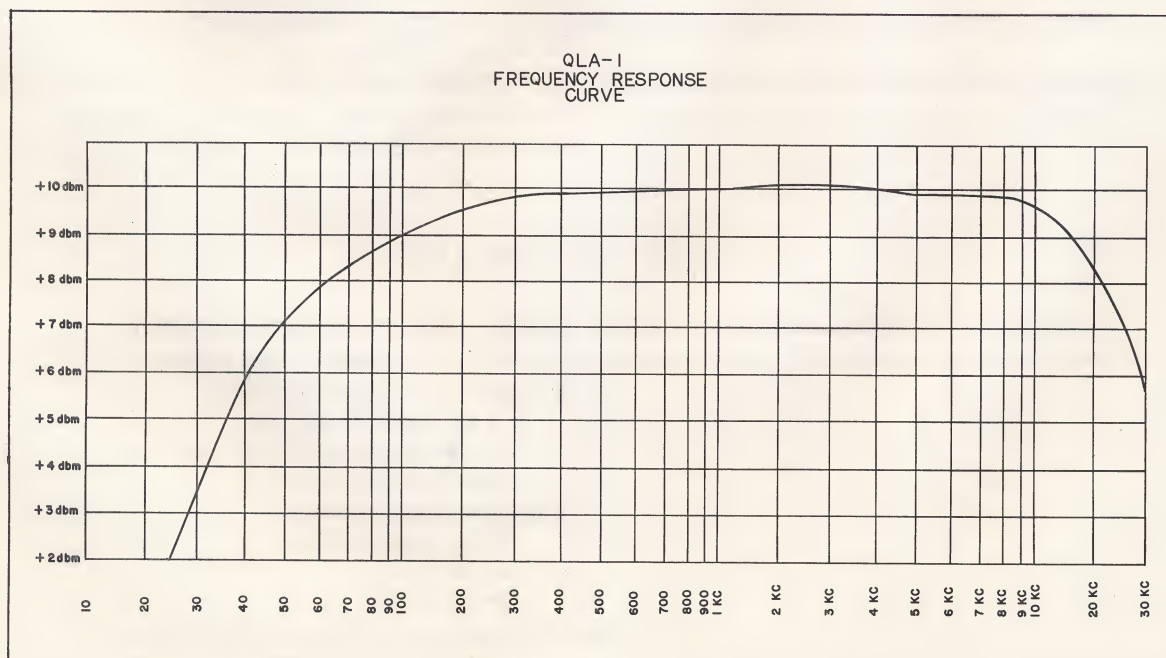
DESCRIPTION

The QLA-1 is a low cost line amplifier with broadcast amplifier characteristics. Its extremely broad frequency response (100 cps to 15 KC ± 1 db; see curve below) and excellent gain, distortion, noise and stability characteristics make the QLA-1 an ideal repeater, program amplifier, or microphone preamplifier.

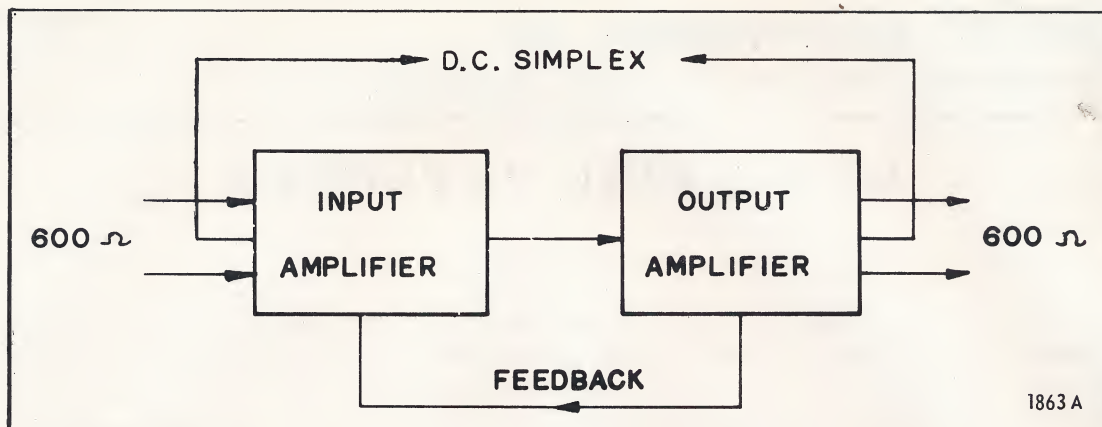
Input and output impedances are 600 ohms, balanced and isolated. Monitor jacks on the front of the amplifier provide an output for headphones at 10 db below the normal output level. A convenient front panel screwdriver control is provided for level adjustment. The QLA-1 can be operated from a 12V DC, 24V DC or 48V DC power supply. All amplifiers are supplied with scaling resistors that permit the QLA-1 to be modified in the field to accommodate any one of the three supply voltages.

FEATURES

- Wide Tolerances on Input Power and Temperature
- One Type of Transistor Used Throughout
- Convenient Headset Monitor Jacks
- Front Panel Level Adjustment
- High Sensitivity and Stability
- DC Simplex Bypass
- Low Cost



QLA-1 LINE AMPLIFIER



QLA-1 Block Diagram

SPECIFICATIONS

Gain	39 db 600 to 600 ohms
Input Level	-21 dbm for maximum output
Output Level	+18 dbm maximum with nominal supply voltage
Distortion	THD Less than 2% at +15 dbm
Frequency Response	±0.5 db, 200 cps to 12 KC ±1 db, 100 cps to 15 KC
Input Impedance	600 ohms balanced and isolated 10 K also available
Load Impedance	600 ohms balanced and isolated 10 K also available
Output Noise Level	-70 dbm
Temperature Range	-30°C to +60°C
Variation in Output Level With Temperature	0.25 db
Power Requirements	12V DC, 24V DC, or 48V DC; 30 MA
Simplex Tap	Input and Output Transformers Center Tapped for DC Simplex Operation
Simplex Current	100 MA Maximum; 5 MA Maximum Unbalance Current
Monitor Output	10 db below output level
Physical	Plug-in Module with 11 pin plug on one end: Can size 1-5/8" x 1-5/8" x 5-9/16"

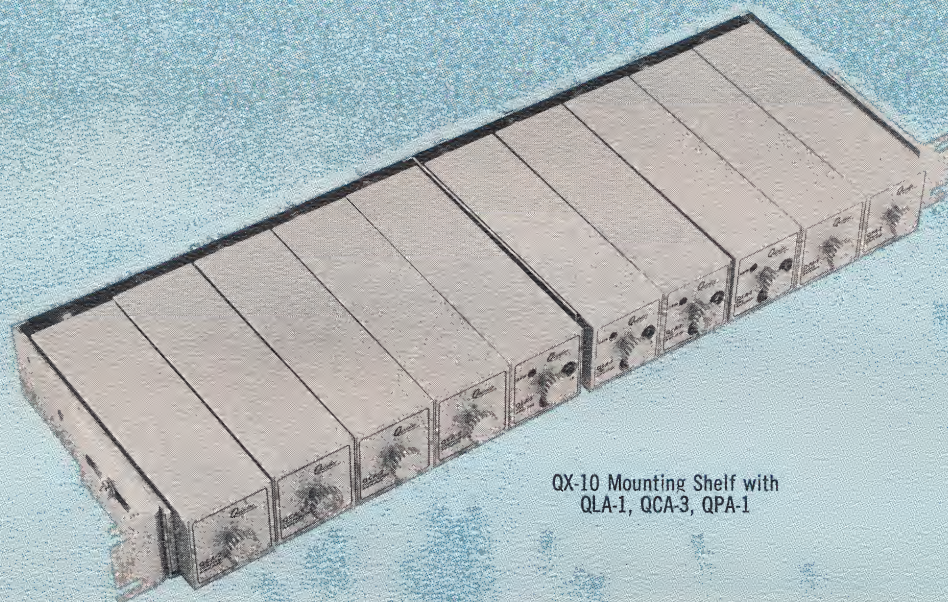
ORDERING INFORMATION

Price:	\$35.00 - Quantity Discounts Available
Order:	QLA-X-Y (includes 11 pin socket)
	X = input and output impedance
	1 = 600 ohms in and out
	1A=10K ohms in and 600 ohms out
	1C=10K ohms in and out
	Y = power supply voltage
	12=11 volts to 13V
	24=22 - 26V
	48=44 - 52V

For other impedances or voltages consult factory.

COMMUNICATIONS AMPLIFIERS

- All solid state, plug-in modules
- Operable over wide temperature range
- Low power drain
- Low heat dissipation



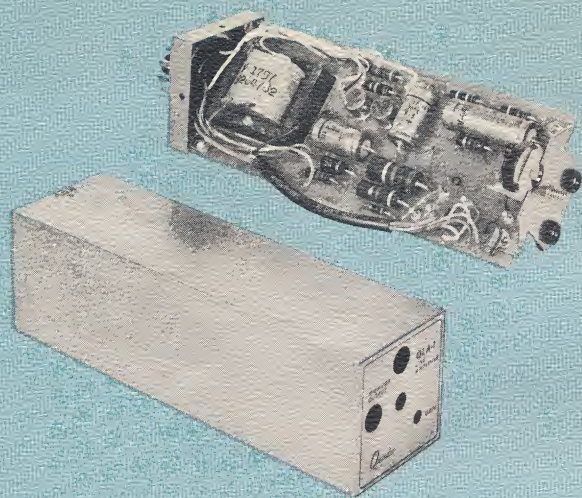
QX-10 Mounting Shelf with
QLA-1, QCA-3, QPA-1

The **Audio Frequency Amplifiers** described in this Bulletin comprise a coordinated line of communications accessories designed for the telephone, radio, airline, railroad and utilities industries. These versatile and compact amplifiers are completely solid state and are intended for exacting, continuous duty.

The use of the newest design techniques and quality components throughout permit stable, reliable operation over a wide range of environmental and operating conditions. Careful attention has been given to low power drain and ease of installation.

The **QX-10, Mounting Shelf** is available for rack mounting up to 10 amplifier units. The Shelf is $1\frac{3}{4}$ " x 19" x $5\frac{1}{2}$ " with adjustable mounting flanges to permit adjustment of front of rack protrusion. The overall depth with the units mounted in the shelf is 7". Since all units are uniform in dimensions and have the same type plug, the various types of amplifiers may be mounted in any arrangement.

The Mounting Shelf QX-10 should be ordered separately.



QLA-1

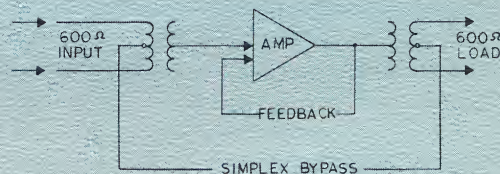
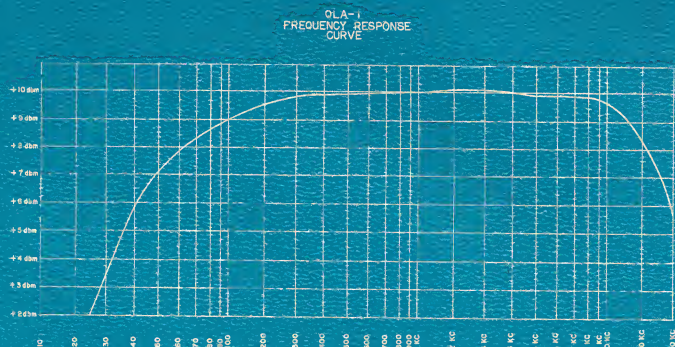
The **QLA-1 Line Amplifier** is designed to amplify voice frequencies either as a repeater or straight amplifier. Its high sensitivity makes it suitable as a microphone preamplifier.

Input and output impedances are 600 ohms balanced and isolated. One type of transistor is used for both stages. A unique DC feedback system provides excellent temperature stabilization over the range -22° to 140°F . The amplifier signal variation over the temperature range is .25 db. The input and output transformers are electrically center tapped in the 600 ohm sections to permit DC simplex bypass. Monitor jacks provide an output for headphones 10 db below the output level. A high torque level control potentiometer permits screwdriver adjustment from the front of the enclosure.

QLA-1 LINE AMPLIFIER

SPECIFICATIONS

Gain	— 39 db 600 to 600 ohms
Input Level	— -21 dbm for maximum output
Output Level	— $+18$ dbm maximum with nominal supply voltage
Distortion	— THD Less than 2% at $+15$ dbm
Frequency Response	— within ± 1.0 db 75-15,000 cps
Input Impedance	— 600 ohms balanced and isolated standard 10 K available on special order
Load Impedance	— 600 ohms balanced and isolated standard 10 K available on special order
Output Noise Level	— -70 dbm
Temperature Range	— -22°F to $+140^{\circ}\text{F}$
Temperature Variation	— 0.25 db
Power Requirements	— 12 volts DC, 30 MA standard also available for 24V & 48V operation
Simplex Tap	— Input and Output Transformers Center Tapped for DC Simplex Operation
Simplex Current	— 100 MA Maximum, 5 MA Maximum Unbalance Current
Monitor Output	— 10 db below output level
Physical	— Plug-in Module with 11 pin plug. can size $1\frac{5}{8}'' \times 1\frac{5}{8}'' \times 5\frac{1}{4}''$



BLOCK DIAGRAM

ORDERING INFORMATION

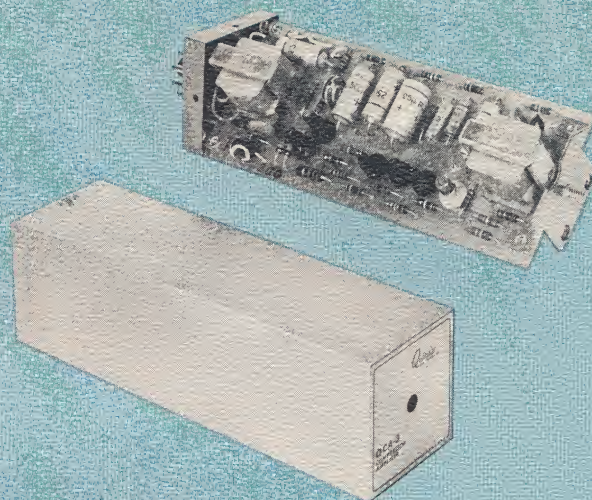
Order: QLA — X — Y (includes 11 pin socket)
 X = input and output impedance
 1 = 600 ohms in and out
 1A = 10K ohms in and out
 Y = power supply voltage
 12 = 11 volts to 13V
 24 = 22 — 26V
 48 = 44 — 52V.

for other impedances or voltages consult factory.

The **QCA-3 Series Compressor Amplifiers** are intended for applications in which a constant audio output level is required despite wide variations in input level.

Some of the more common situations causing variations of audio level in which a QCA-3 might prove useful are: variations in speech loudness of different radio operators using the same microphone—variable distance between microphone and operators lips—fading of a radio channel—several audio or radio channels of different gains terminating at the same speaker position.

The **QCA-3** will maintain a constant output level of $+2 \text{ dbm}$, $\pm 0.5 \text{ dbm}$, for input level changes as great as 45 dbm . Detailed specifications for the QCA-3, QCA-3-1, and QCA-3-2, are given below.



QCA-3: QCA-3-1: QCA-3-2

QCA-3:QCA-3-1: QCA-3-2 COMPRESSOR AMPLIFIER

SPECIFICATIONS

NOTE: Unless otherwise indicated, Specifications cover all three models.

Input Level for Constant Output

— QCA-3: $-50 \text{ dbm} \pm 1.5 \text{ dbm}$ to $-10 \text{ dbm} \pm 1.5 \text{ dbm}$
(2.5 mv to 250 mv)

— QCA-3-1: $-40 \text{ dbm} \pm 1.5 \text{ dbm}$ to $+5 \text{ dbm} \pm 1.5 \text{ dbm}$
(7.8 mv to 1.8 V)

— QCA-3-2: $-30 \text{ dbm} \pm 1.5 \text{ dbm}$ to $+15 \text{ dbm} \pm 1.5 \text{ dbm}$
(24 mv to 4.4 V)

Output Level — $+2 \text{ dbm} \pm 0.5 \text{ dbm}$ in compression range

Variation in Output Level — With temperature (-22°F to $+140^\circ\text{F}$) $\pm 1.5 \text{ db}$
With input level (through constant output range) $\pm 0.2 \text{ db}$
With frequency (200 cps to 25 kc) $\pm 0.2 \text{ db}$

Attack Time — 5 m sec

Release Time — 1.0 sec

Harmonic Distortion — Less than 3% from 200 cps to 25 kc with input level within compression range

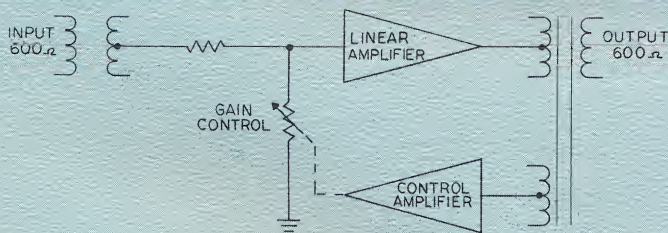
Input Impedance — $600 \text{ ohms} \pm 10\%$

Output Impedance — $600 \text{ ohms} \pm 10\%$

Power Required — $12, 24, \text{ or } 48 \text{ VDC}; 9 \text{ ma}$

Temperature Range — -30°C to $+60^\circ\text{C}$

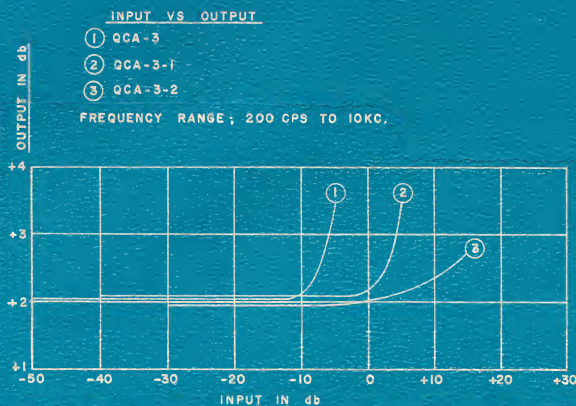
Physical Dimensions — Plug-in module with 11 pin plug:
can size $1\frac{1}{8}'' \times 1\frac{1}{8}'' \times 5\frac{1}{16}''$

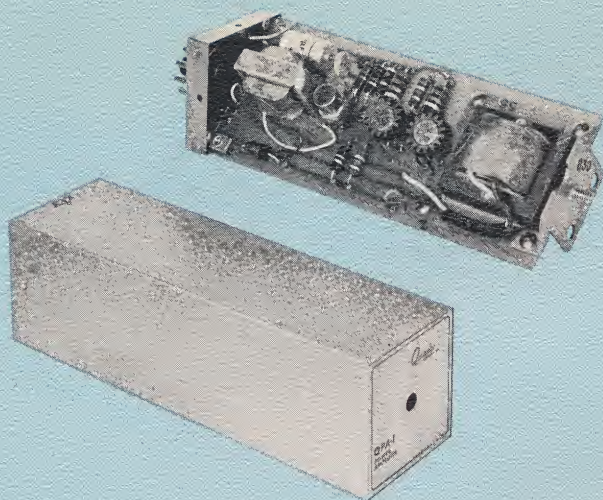


BLOCK DIAGRAM

ORDERING INFORMATION

Order: QCA-3 — X, QCA-3-1 — X, QCA-3-2 — X (includes 11 pin socket)
Choose X as: 12, 24, or 48 to specify D.C. operating voltage.
For other impedances or voltages consult factory.





QPA-1

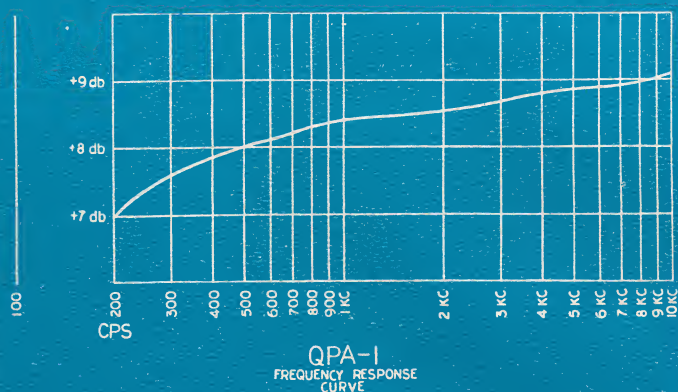
The **Power Amplifier, QPA-1**, is designed for driving monitor speakers from a program bus or similar 600 ohm audio source having a level of -5 to -10 dbm. Lower level audio sources such as telephone lines may be monitored by cascading a QPA-1 with either a line amplifier QLA-1 or a compressor amplifier, QCA-3. The use of these cascaded amplifiers will permit adequate output on input levels as low as -50 dbm. The use of the compressor amplifier, QCA-3, in cascade with the QPA-1 power amplifier will permit monitoring of sources whose level fluctuates by as much as 50 db with less than 3 db variation in the output of the QPA-1.

Input impedance is 600 ohms and output impedance is 6 ohms. Commercial grade rather than entertainment grade transistors are used throughout. Class B push-pull output insures full current drain only at maximum output, standby drain is approximately $1/5$ full output drain.

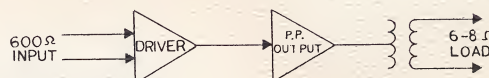
QPA-1 POWER AMPLIFIER

SPECIFICATIONS

Input Level	— -10 dbm for 500 MW output
Input Impedance	— 600 ohms
Max. Output	— 1 watt
Response	— ± 1 db from 250 cps to 6 KC
Power Required	— 12 V @ 15 MA with no signal 12 V @ 160 MA at full output
Physical	— Plug-in module with 11 pin plug on one end: can size $1\frac{1}{8}" \times 1\frac{1}{8}" \times 5\frac{1}{16}"$



2191B



BLOCK DIAGRAM

ORDERING INFORMATION

Order as QPA-1
For voltages other than 12 volts D.C.
or other impedances consult factory.

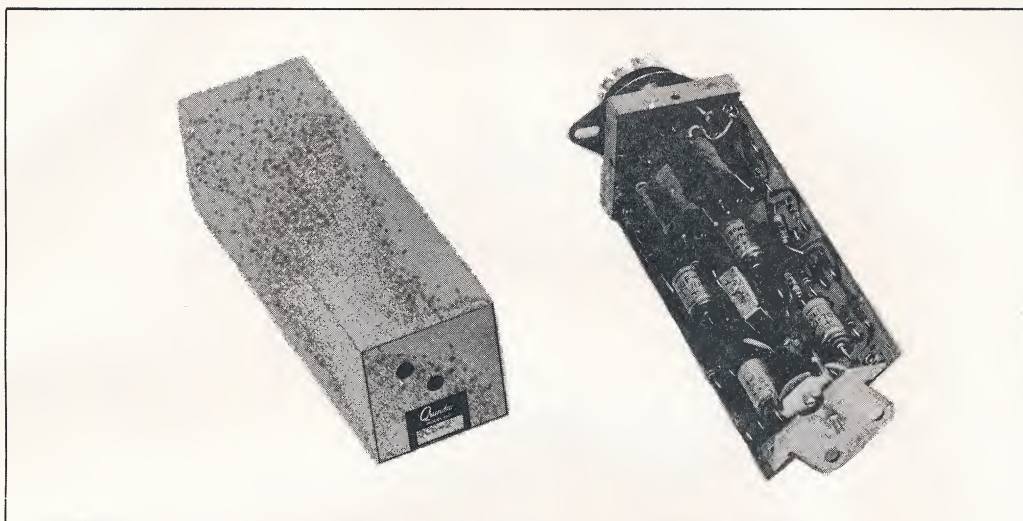
Quindar
ELECTRONICS, INC.

60 Fadem Road, Springfield, N. J.

201-379-7400

TWX 201-379-7091

VOICE OPERATED/SQUELCH UNIT—QCS-2



PURPOSE

The QCS-2 is an audio tone actuated relay which will provide an adjustable squelch control for line devices such as the Quindar QCA-3, QLA-1, or combinations of both. The unit is a solid state, plug-in device and is available for 12 or 24 VDC operation.

Its bridging characteristics and integral amplifier, make it especially adaptable for voice operated circuits.

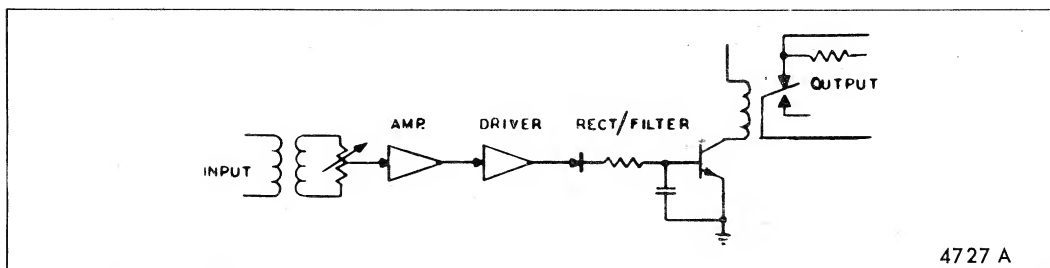
The output configuration permits disconnection of line devices and re-application to the line at any desired audio level between -55 and 0 dbm.

Typical applications, where voice operation of a radio frequency transmitter and audio compression to preclude over-modulation and/or compensation for different voice levels, are shown on reverse side.

SPECIFICATIONS

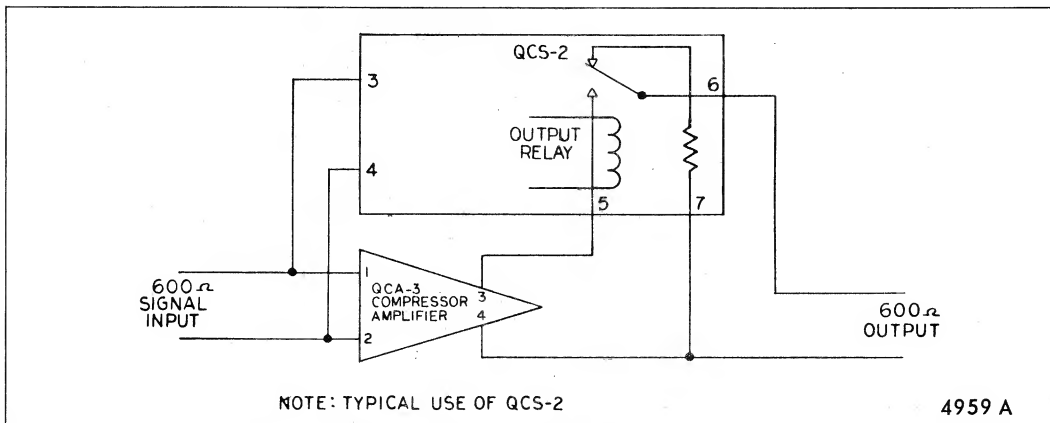
Sensitivity	-55 DBM to 0 DBM adjustable
Input Impedance	3000 Ω (Bridging)
Output	Form C contact with 600 ohm series optional
Attack Time	100 ms max. (75 typical)
Release Time	300 ms min. (400 typical)
Contact Rating	10 V.A. at 250 V. max. or .5 amp. max.
Power Required	12 V. at 5 ma with no signal 12 V. at 45 ma with signal 24 V. at 10 ma with no signal 24 V. at 50 ma with signal
Physical	Plug-in module with 11 pin plug on one end: Can size 1-5/8 x 1-5/8 x 5-9/16

APPLICATIONS



4727 A

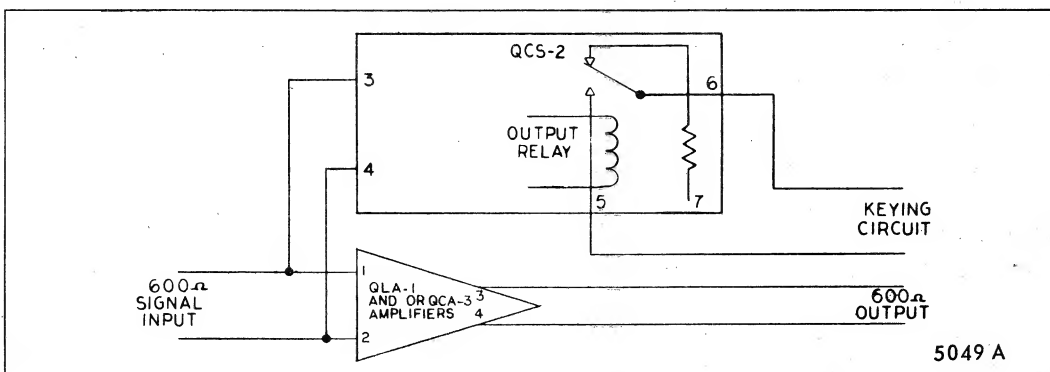
QCS-2 BLOCK DIAGRAM



NOTE: TYPICAL USE OF QCS-2

4959 A

SYSTEM BLOCK DIAGRAM



5049 A

SYSTEM BLOCK DIAGRAM

The QCS-2 is provided with a mating 11 pin socket for mounting. A QX-10 frame, with provisions for 10 plug-in units, is also available.

When ordering, designate voltage application by suffix:

12V operation QCS-2-12

24V operation QCS-2-24

For additional information on the QX-10 frame and companion units, QLA-1 Line Amplifier, QCA-3 Compressor Amplifier and QPA-1 Power Amplifier, see Bulletin 5000 A.